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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/722,818	11/25/2003	Seong Hyun Kim	2013P135	9371

8791 7590 10/28/2005

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EXAMINER	
QUACH, TUAN N	

ART UNIT	PAPER NUMBER
2826	

DATE MAILED: 10/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/722,818	KIM ET AL.	
	Examiner	Art Unit	
	Tuan Quach	2826	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 September 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-7* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-7* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on August 26, 2005 has been entered.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1-7 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The second electrode only made of metal and each electrode portion only made of metal as now claimed in claim 1 lines 2 and 3 is not described sufficiently in the specification. See, e.g., original claims, abstract, Summary of invention, page 2, lines 22-25, disclosure, page 3 line 18, which states "[a] second electrode 140 made of another conductive material . . ." , disclosure page 5 line 25-30 wherein the second electrode may be made of Cr, Mo, or Ta and does not support the requirement that electrode only made of metal. Note particularly the absence of such "only made of metal" and any criticality regarding such "only made of metal" particularly in view of its contradiction wherein the second electrode is explicitly taught to be of a

conductive material. The preclusion of conductive materials that is not metal does not appear to be supported by the original disclosure which explicitly recites that conductive material can be employed and which is silent regarding the language of "only made of metal" as now claimed.

Claims 1-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hack taken with Dodabalapur

Re claim 1, Hack, 4,996,573, teaches a vertical structure thin film transistor comprising a stacked structure of a suitable substrate such as glass substrate 10, a first electrode conductive gate electrode layer 12, a dielectric thin film 14 of gate dielectric layer, a second electrode for source fingers 16, a semiconductor thin film 24, and a third electrode 26; see Fig. 1, column 3 lines 19 to column 4 line 11. Note that regarding the newly amended feature concerning the electrode only made of metal and divided into a plurality of electrode portions, such is unpatentable and obvious or encompassed in the teachings of Hack, wherein the second electrode being divided to several electrode portions spaced apart from each other is also shown in Fig. 2, column 3 lines 41-59.

The limitation regarding the electrode only made of metal as now amended would be met as shown at column 3 lines 60 wherein the material for the electrode 16 includes metallic material such as titanium/tungsten alloys and barrier elements 22 and the interchangebility and the use of metal for the electrode would have been further obvious as evidenced by Dodabalpur 6,215,130, column 3 lines 32-45, column 5 lines 25-30, particularly in the absence of criticality regarding such "electrode only made of metal" in the instant disclosure, see, e.g., original claims, abstract, Summary of

invention, page 2, lines 22-25, disclosure, page 3 line 18, which states "[a] second electrode 140 made of another conductive material . . ." , disclosure page 5 line 25-30 hwerein the second electrode may be made of Cr, Mo, or Ta and does not support a criticality of electrode only made of metal and in fact teaches that a second electrode made of conductive material thus consistent with the conductive material taught in Hack above,

Re claim 2 and 3, the sequential stacking of the first electrode, dielectric thin film the second electrode, and the third electrode on the substrate is shown in Fig. 1. Note that claim 3 is anticipated provided the third electrode, the semiconductor thin film, the second electrode, and dielectric layer are sequentially stacked on the substrate as no order as to which layer is closest to the substrate is required or specified in either claims 2 or 3. Regarding claim 4, the use of suitable substrate is contemplated and glass as such a suitable substrate material is shown. Regarding claim 5, the semiconductor thin film being inorganic semiconductor is met as Hack teaches silicon as the semiconductor layer 24.

Note that regarding the recitation of current flowing as delineated in claims 1 lines 3-5, and the recitation regarding the electric field acts on the semiconductor thin film as in claim 7 line 3-4, such limitations would have been inherent in Hack, given that a vertical thin film transistor is obtained including structures of respective layers as delineated in Hack and that the positioning of the respective layers are as shown, particularly column 3 lines 19-40 (current path between the source and drain), and as shown in Figs. 1, 3, 5, vertical arrows.

Additionally, the intended use of the gate for generating of electric field and spacing apart so that the gate field acts on the semiconductor thin film would not be unpatentable over the prior art for the reasons below. Such use of gate field would appear to be shown in Hack, column 3 lines 20-30 and as shown in Fig. 1, and otherwise would have been clearly capable of being performed by the vertical thin film transistor taught therein and the respective spaced apart electrodes 16; particularly given that the structures as delineated are anticipated by Hack as characterized above. Furthermore, the intended use and other types of functional language must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. *In re Casey,* 152 USPQ 235 (CCPA 1967); *In re Otto,* 136 USPQ 458, 459 (CCPA 1963). A recitation directed to the manner in which a claimed apparatus is intended to be used does not distinguish the claimed apparatus from the prior art – if the prior art has the capability to so perform. See MPEP 2114 and *Ex parte Masham,* 2 USPQ2d 1647 (1987). The recitation of a new intended use for an old product does not make a claim to that old product patentable. *In re Schreiber*, 44 USPQ2d 1429 (Fed. Cir. 1997).

Regarding claim 6, Hack is applied as above and does not recite the semiconductor material can be organic. Dodabalapur 6,215,130 further teaches the semiconductor material in TFT includes inorganic material such as silicon or preferably organic material. See column 5 lines 32-66, column 6 lines 36-43.

It would have been obvious to one skilled in the art in practicing the Hack invention to have employed with inorganic or organic semiconductor material since such materials are well known in the art wherein the use of organic semiconductor materials would permit further reduction in device dimension.

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hack taken with Dodabalapur as applied to claims 1-7 above, and further in view of Carey.

Regarding the alternative substrate materials of silicon or plastic, such corresponds to well known suitable alternative substrate materials as evidenced by Carey, 5,817,550, column 7 lines 5-12.

Applicant's arguments filed August 26, 2005 have been fully considered but they are not persuasive.

Regarding the recitation of "only of metal", see the additional reasons delineated above. Regarding applicant's argument that Hack teaches metal stripes and not electrode made of metal, the use of electrode including the metal is shown in Hack wherein metal 20 is shown and further obvious as evidenced by Dodabalpur wherein the use of metal conductors for electrodes are notoriously conventional. It remains that such use of conventional conductive materials such as metal for electrodes would not require inventiveness and would have been obvious as contemplated by Hack and as evidenced by Dodablapur, particularly given that the instant disclosure explicitly recites that conductive material is employed, nowhere recites "only metal" as now claimed. Furthermore, contrary to applicant's argument, the current flowing as delineated in claims 1 and the recitation regarding the electric field acts on the semiconductor thin

film as in claim 7 line 3-4, such limitations would have been inherent in Hack, given that a vertical thin film transistor is obtained including structures of respective layers as delineated in Hack and that the positioning of the respective layers are as shown, particularly column 3 lines 19-40 (current path between the source and drain), and as shown in Figs. 1, 3, 5, vertical arrows.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Iechi et al. 2003/0213952 teaches conductive materials for source electrodes such as Cr, Mo, Au, [0053].

Any inquiry concerning this communication or earlier communications from the examiner should be directed to examiner Tuan Quach whose telephone number is 571-272-1717. The examiner can normally be reached on M-F from 8:30 AM to 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor Nathan Flynn, can be reached on 571-272-1915. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Tuan Quach
Primary Examiner